Mihai Anitescu

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PERSONAL DATA

- **Citizenship:** USA, since 2007.

- **Marital status:** Married to Magdalena; two daughters, Julia-Christine (born 2002), and Emily-Alexandra (born 2007).

EDUCATION

1997 Ph.D. in Applied Mathematical and Computational Sciences,
University of Iowa (academic advisor: Prof. Florian Potra).

1992 M.S. in Electrical Engineering (Engineer Diploma),
Polytechnic University of Bucharest, Romania.

APPOINTMENTS

2002-	Computational Mathematician, Mathematics and Computer Science Division, Argonne National Laboratory.
2009-	Professor, (Part-Time), Department of Statistics, University of Chicago.
2005-	Fellow, Computation Institute, University of Chicago
2004-	Adjunct Associate Professor, Department of Mathematics, University of Pittsburgh.

PROFESSIONAL EXPERIENCE

1997-2004	Assistant Professor, Department of Mathematics, University of Pittsburgh (on leave 1997-1999 and 2002-2004).
1997-1999	Wilkinson Fellow in Scientific Computing, Argonne National Laboratory.
1993-1997	Research and Teaching Assistantships in the Departments of Mathematics and Computer Science, University of Iowa.

1995	Givens Research Associate, Mathematics and Computer Science Division, Argonne National Laboratory.
1992-1993	Teaching Assistant, Department of Electronics, Polytechnic University of Bucharest, Romania.
1992	Tempus Fellow, Institut National Polytechnique de Grenoble, France

HONORS AND AWARDS

- Wilkinson Fellow, Argonne National Laboratory, 1997-1999.

- Silver medal at the International Mathematical Olympiad, 1986.

- Prizes at the regional and national phases of The Physics Competition (both the general and the electromagnetics sections) for Romanian college students, 1989.

- Romanian National Fellowship, 1989.

- First prize at the Romanian National Mathematical Competition "Traian Lalescu" (college students), 1988.

- Multiple prizes at the regional and national phases of the Romanian National Olympiad and various other national high school mathematics and physics competitions, 1984–1986.

AREAS OF RESEARCH INTEREST

Numerical optimization. Numerical analysis. Uncertainty Quantification. Multi-rigid-body dynamics.

FUNDING

- **At Argonne (funding amounts are per year)**

  - PI, "Scalable statistical analysis of Gaussian models for Petascale spatiotemporal data", DOE-ASCR, $450K, 2009-2012.
  - PI, "Stochastic Optimization of Complex Systems", DOE-ASCR, $485K, 2009-2012.
  - PI, "Advanced Numerical Methods for Differential Variational Inequalities", $325K, DOE-ASCR, 2009-2012.
  - Co-PI, "International Symposium on Mathematical Programming", $20K, DOE-ASCR, 2009.
  - PI, " A New Challenge for Computational Science: Complementarity Constraionts", $375K, DOE-ASCR, 2006-2009.
  - Co-PI, NSF DMS-0937025, "International Symposium on Mathematical Programming", $20K, 2009.
  - Co-Investigator of the "Novel Power System Operations Methods for Wind-Powered Systemr" LDRD Award, by Argonne National Laboratory, $350K, 2009-2012
  - Co-Investigator of the "Separations" LDRD Award, by Argonne National Laboratory, $300K, 2007-2010
  - Co-Investigator of the "Virtual Fab Lab" LDRD Award, by Argonne National Laboratory $300K+, 2004-2006 (PIs P. Zapol and S. Gray).

- **At Pitt**

- Co Principal Investigator for the National Science Foundation Grant DMS-0112239 "Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)", 2001-2003, $25,000 + $39,000 University of Pittsburgh cost sharing (with J. Chadam, C. Chow, W. Layton, and I. Yotov).

- Principal Investigator for the National Science Foundation Grant DMS-9973071, "A Computational Framework for Multi-Rigid Body Dynamics with Contact and Friction", 1999-2002, $75,000.

- Principal Investigator for the University of Pittsburgh Grant "A Computational Framework for Multi-Rigid Body Dynamics with Contact and Friction", 1999-2001, $14,204.

TEACHING ACTIVITIES AT THE UNIVERSITY OF PITTSBURGH

- **Classes taught:** Elementary functions, Calculus for Engineering, Trigonometric Functions, Calculus for Business, Introduction to Linear Programming, Introduction to Numerical Linear Algebra, Introduction to Scientific Computing (graduate), Introduction to Numerical Ordinary Differential Equations (graduate), Industrial Mathematics, Numerical Linear Algebra (graduate), Introduction to Numerical Partial Differential Equations (graduate).

- **Curriculum Development**

  - Developed the graduate class Introduction to Scientific Computing (1999).
  - Developed, together with John Burkardt of the Pittsburgh Supercomputing Center, the computational laboratory for Introduction to Scientific Computing (1999).
  - Participated in various curriculum enhancement activities of the undergraduate mathematics program, including a Sloan Foundation-sponsored development of an industrial mathematics program (2000).

MENTORSHIP ACTIVITIES

- **Postdoctoral and Long-Term Visiting Scholars Sponsored or Supervised**

  1. Dan Negrut (2004-2005), currently at University of Wisconsin, Department of Mechanical Engineering. Research Topic: " Scalable Multiscale Methods for Orbital-Free Density Functional Theory "
  2. Victor Zavala (2008-present) Research Topic: "Optimization of Hybrid Energy Systems".
  3. Emil Constantinescu (2008-present). Research Topic: "Uncertainty Quantification".
  4. Xiaoyan Zeng (2008-present). Research Topic: "Uncertainty Analysis in Chemical Plant Safety".
  5. Cosmin Petra (2009-present). Research Topic: "Stochastic Programming".
  6. Oleg Roderick (2009-present). Research Topic: "Hybrid Sampling-Sensitivity Approaches for Nuclear Reactors".

- **Student Interns at Argonne**

  1. Alec Hanson (Princeton, with Lois C. McInnes), 1998. Project: "Parallel Implementation of Time Dependent Differential Variational Inequalities".
  2. Adrian Dunca (University of Pittsburgh, with Traian Iliescu), 2002. Project: " Optimal Design of Fluid Flow Using Subproblems Reduced by Large Eddy Simulation ".

3. Jufeng Peng (Rensselaer) 2003. Project: "Mathematical Programs with Complementarity Constraints in Robotics". Co-author of 1 conference proceedings paper (ICRA 2003).

4. Bogdan Gavrea (University of Maryland, Baltimore County), 2005. Project: "Quadratic Programming Approaches for Multi-Body Dynamics with Contact and Friction". Co-author on 3 journal submissions.

5. Gun Srijutongsiri (grad, Cornell), 2005. Project: "Statistics of Granular Flow".

6. Adrian Kopacz (Northwestern), 2005. Project: " Scalable Methods for Orbital-Free Density Functional Theory Calculations".

7. Monika Neda (University of Pittsburgh), 2006. Project: "A collocation approach for uncertainty quantification in nuclear reactors". Co-author of 1 conference proceedings paper (ANS M&S 2007).

8. Xiaoyan Zeng (Illinois Institute of Technology), 2006. Project: "Chemical Plant Safety Assessment Under Uncertainty" Co-author of 1 journal paper.

9. Emil Constantinescu (Virginia Tech), 2006. Project: " Scalable Methods for Orbital-Free Density Functional Theory Calculations" Co-author of 2 journal papers and 2 conference proceedings papers.

10. Oleg Roderick (Portland State University), 2008. Project: " A Hybrid Sampling Sensitivity Approach for Uncertainty Quantification in Nuclear Reactors " co-author of 2 journal papers and 1 conference proceedings paper.

11. Kyle Schmitt, (MIT), 2008. Project: " Efficient Sampling of Dynamical Systems with Spatial Uncertainty " co-author of 1 conference proceedings paper and 1 journal paper.

12. Matt Rockhlin, (University of Chicago, with Emil Constantinescu), 2009. Project: "Uncertainty Quantification of Numerical Weather Prediction Systems". Co-author of 1 journal paper.

13. Sangmin Lee (NYU, with Victor Zavala), 2009. Project: "Stochastic Unit Commitment under Uncertainty". Co-author of 1 journal paper.

- **Graduate students advised (at Pitt)**

   1. Gary D. Hart, Ph.D., 2007. (with William J. Layton). Currently Instructor, University of Pittsburgh at Greensburgh. Ph.D Thesis: "A Constrained-Stabilized Time-Stepping Approach for Piecewise Smooth Multibody Dynamics. "

   2. Faranak Pahlevani, Ph.D., 2004 (with William J. Layton). Ph.D Thesis: " Sensitivity Analysis of Eddy Viscosity Models". Currently Assistant Professor at City University of New York, Medgar Evers College.

- **Degree and Exam Committees**

   - **Comprehensive Exam Committee** (at Pitt 1999-2002) Students: Atife Caglar, Jon Drover, Adrian Dunca, Noel Heitmann, Faranak Pahlevani, and Niyazi Sahin, all Math Department at Pitt.

   - **MS Committess** Mark Fenner, Department of Computer Science, University of Pittsburgh (2002).

   - **Ph.D Committees** Anasthasos Liakos, Niyazi Sahin, Adrian Dunca, Hussein-Al Attas, Kimberley Jordan (all at the University of Pittsburgh mathematics department, 1999-2002), Pierre Dognin (electrical engineering, University of Pittsburgh, 2003), Arvind Uppilli Raghunathan (chemical engineering, Carnegie Mellon University, 2004), Bogdan Gavrea (mathematics, University of Maryland, Baltimore County, 2006) Cosmin Petra (mathematics, University of Maryland, Baltimore County, 2009).

REFEREEING AND EDITORIAL SERVICE

- **Editorial Boards**

    - Software Editor, Optimization Methods and Software (since 2004).
    - Associate Editor, Mathematical Programming, series A (since 2004).
    - Associate Editor, Mathematical Programming, series B (since 2007).
    - Associated Editor, Siam Journal on Optimization (since 2010).

- **Proposal Reviews**

    - National Science Foundation. (1998, 1999, 2002, 2006),
    - Romanian Science Foundation (2005).
    - The Natural Science and Engineering Research Council of Canada (2004),
    - The Hong Kong Science Foundation (2002).
    - The Department of Energy (2008,2009).

- **Panel participation**

    - NSF-ITR small grants panel (2002),
    - NSF Operations Research panel (2006),
    - NSF CSUMS panel (2006).

- **Invited NSF workshop participation**

    - "Benchmarks for High Performance Computing", (2005).
    - "Mathematics in Robotics", (2000).

- **Refereed papers (about 15-20 a year) for** *SIAM Journal in Optimization, SIAM Journal Of Control, SIAM Journal Of Numerical Analysis, SIAM Journal On Scientific Computing, Numerische Mathematik, Mathematical Programming, Applied Mathematics Letters, Linear Algebra and Its Applications, Computational Optimization and Applications, Optimization Methods and Software, Control, Optimization, and the Calculus of Variations, Optimization and Engineering, Journal of Optimization Theory and Applications, ACM Transactions on Graphics, ACM SIGGRAPH, International Journal of Numerical Methods in Engineering, IEEE Transactions in Signal Processing, IEEE Transactions in Robotics, IEEE International Conference in Robotics and Automation, Transactions of the Institute of Industrial Engineers, Computers and Chemical Engineering.*

PROFESSIONAL SOCIETY SERVICE

- **Professional Society Officer**,

    - Vice-chair for linear programming and complementarity, Optimization Section, Institute for Operations Research and Management Science (INFORMS), 2005-2008. Organized the Linear Programming/ Complementarity Clusters at INFORMS annual meeting, 2006-2007.

- **Conference Organization Committees**

    - The DOE Crosscut Extreme Scale Workshop, 2010, Rockville, MD.
    - The 2nd INL/NCSU Verification and Validation Workshop, Myrtle Beach, SC, 2010.
    - ICCOPT 2010: The 3rd International Conference on Continuous Optimization of the Mathematical Programming Society, Santiago de Chile.

- SIAM Annual Meeting, 2009, Denver.
- International Symposium for Mathematical Programming, 2009, Chicago.
- Steering Committee, Midwest Numerical Analysis Conference, (2007-present).
- The 15-th, 16-th, and 17-th International Conference on Control Systems and Computer Science, Bucharest, Romania, 2005, 2007, 2009 (sponsored by the regional IEEE chapter).
- Joint EUROPT-OMS Meeting 2007: 2nd Conference on Optimization Methods and Software and 6th EUROPT Workshop on Advances in Continuous Optimization July 4-7, 2007, in Prague, Czech Republic (member of program committee).
- World Congress in Computational Mechanics, 2006, Los Angeles (member of advisory committee)

- **Minisymposia organized**

  - **Optimization** INFORMS fall meeting, San Antonio, 2000; INFORMS fall meeting, San Jose 2002 (2); International Symposium in Mathematical Programming, Copenhagen, 2003; INFORMS fall meeting, Atlanta 2003 (2); Canadian Operations Research Society international meeting, Banff, 2004; INFORMS fall meeting, Denver 2004 (3), International Conference on Complementarity Problems, Stanford 2005; INFORMS fall meeting San Francisco 2005 (2); 2-nd International Conference on Continuous Optimization, Hamilton, Canada, 2007; INFORMS Annual Meeting 2007, Seattle; INFORMS Annual Meeting Washington DC, 2008; INFORMS Annual Meeting 2009, San Diego (2).
  - **Multibody Dynamics** World Congress in Computational Mechanics, Los Angeles, 2006; International Conference for Intelligent Robots and Systems, 2003 (Dynamics Section).

COMMITTEE WORK AT THE UNIVERSITY OF PITTSBURGH

- Served in the Mellon Chair Search Committee (1999).
- Departmental Chair Selection Committee (2000).
- Scientific Computing Hiring Committee (2002).

COMMITTEE WORK AT ARGONNE

- Chaired the Wilkinson Selection Committee (2010).
- Chaired the Wilkinson Selection Committee (2008).
- Divisional Awards Committe (2009).

INVITED TALKS

Georgia Institute of Technology (1997), Clemson University (1997), Argonne National Laboratory (1997), University of Louisville (1997), University of Pittsburgh (1997), University of Iowa (1997), SIAM Conference in Optimization, Atlanta (1999), INFORMS fall meeting, Philadelphia (1999), University of Maryland, Baltimore County (1999), INFORMS spring meeting, Salt Lake City (2000), Mathematical Programming Symposium, Atlanta (2000), INFORMS fall meeting, San Antonio (2000), Old Dominion University (2001), IMA Workshop on Haptics, Virtual Reality and Human Computer Interaction, Minneapolis (2001), Contact Mechanics International Symposium, Peniche, Portugal, (2001), International Conference on Scientific

Computation And Differential Equations, Vancouver, Canada (2001), INFORMS fall meeting, Miami Beach (2001), SIAM Optimization Conference, Toronto, (2002), International Symposium on Complementarity Problems, Cambridge, (2002), INFORMS fall meeting, San Jose, (2002), International Congress on Computational and Applied Mathematics, Sydney (2003), SIAM Annual Meeting, Montreal (2003), INFORMS fall meeting, Atlanta (2003), International Conference on Intelligent Robots and Systems, Las Vegas (2003), SIAM Annual Meeting, Portland (2004), Sandia Multiscale Optimization Workshop (2004), BIRS Workshop on Molecular Dynamics, Banff (2005), Midwest Numerical Analysis Conference, (plenary, 2005), 15th International Conference on Control and Computer Science, Bucharest, (2005), 4th International Conference on Complementarity Problems, Stanford, (2005), Illinois Institute of Technology (2006), Workshop on Assessment of Sensitivity/Uncertainty Analysis Capabilities Applicable for the Nuclear Fuel Cycle, North Carolina State University (2006), 3-rd Workshop on the Global Nuclear Energy partnership, Washington, D.C. (2006), International Congress on Industrial and Applied Mathematics, Zurich (2007), International Conference on Continuous Optimization, Hamilton, (semi-plenary, 2007), Computational and Mathematical Methods in Science and Engineering, (plenary, 2007), International Workshop on Hybrid Systems Modeling, Simulation and Optimization Ko University, Istanbul (2008), GNEP Verification and Validation workshop, Idaho Falls (2008), Stevens Institute of Technology Colloquium (2008), INFORMS Annual Meeting (2008), SIAM Conference on Computational Science and Engineering (2009), University of Illinois at Chicago Math Colloquium (2009). American Nuclear Society Annual Meeting, (2009, roundtable keynote), International Symposium on Mathematical Programming (2009, semi-plenary), SIAM Annual Meeting (2009), US National Congress in Computational Mechanics (2009), INFORMS Annual Meeting (2009), Lehigh High Performance Computing Meeting (2009).

PUBLICATIONS

JOURNAL PAPERS PUBLISHED OR IN PRINT

1. D. Stewart and M. Anitescu. "Optimal Control of Systems with Discontinuous Differential Equations". Preprint number: ANL/MCS-P1258-0605, Mathematics and Computer Science Division, Argonne National Laboratory, June 2005, revised, July 2007. To appear in *Numerische Mathematik.*

2. Oleg Roderick, Mihai Anitescu, and Paul Fischer. "Stochastic finite element approaches using derivative information for uncertainty quantification" Preprint ANL/MCS 1551-1008. To appear in *Nuclear Science and Engineering.*

3. Mihai Anitescu and Sanghyun Park."Short Communication: A Linear Assignment Approach for the Least-Squares Protein Morphing Problem Short Communication: A linear programming approach for the least-squares protein morphing problem". To appear in *Mathematical Programming.*

4. Alessandro Tasora and Mihai Anitescu. A Convex Complementarity Approach for Simulating Large Granular Flow. Preprint ANL/MCS-P1592-0309. Journal of Computational Nonlinear Dynamics, to appear.

5. M Anitescu, A. Tasora. "An iterative approach for cone complementarity problems for nonsmooth dynamics". Preprint ANL/MCS-P1413-0507. To appear in *Computational Optimization and Applications.*

6. Oleg Roderick, Mihai Anitescu, Paul Fischer, Won-Sik Yang. "Stochastic Finite-Element Approach in Nuclear Reactor Uncertainty Quantification". *Transactions of American Nuclear Society*, volume 100, pages 317-318, 2009.

7. Victor Zavala, Emil Constantinescu, Theodore Krause, and Mihai Anitescu." *Journal of Process Control*, Volume 19, Issue 10, Pages 1725-1736, December 2009.

8. Cosmin Petra, Bogdan Gavrea, Mihai Anitescu, and Florian Potra. "A computational study of the use of an optimization-based method for simulating large multibody systems ". *Optimization Methods and Software.* Volume 24(6), Pages 871–894, 2009.

9. Kyle Schmitt, Mihai Anitescu and Dan Negrut. "Efficient Sampling of Dynamical Systems with Spatial Uncertainty". *International Journal for Numerical Methods in Engineering (IJNME).*Volume 80(5), Pages 537-564, 2009.

10. M. Anitescu. Spectral Stochastic Finite Element Methods for Parametric Constrained Optimization Problems. SIAM Journal of Numerical Analysis 47, Issue 3, pp. 1739-1759 (2009).

11. Xiaoyan Zeng, Mihai Anitescu, Candido Pereira, and Monica Regalbuto. "A Framework for Chemical Plant Safety Assessment Under Uncertainty ". Studies in Informatics and Control. Volume 18(1), Pages 5-20, (2009)

12. Jaydeep Bardhan, Matt Knepley and Mihai Anitescu. "Bounding the Electrostatic Free Energies Associated with Linear Continuum Models of Molecular Solvation". J. Chem. Phys. 130, 104108, 2009.

13. M. Anitescu, D. Negrut, A. El-Azab, and P. Zapol, A note on the regularity of reduced models obtained by nonlocal quasicontinuum-like approaches. *Mathematical Programming.* Volume 118, Number 2, Pages 207-236, 2009.

14. Alessandro Tasora, Dan Negrut and Mihai Anitescu. "Large-Scale Parallel Multibody Dynamics with Frictional Contact on the Graphical Processing Unit ". Proc. IMechE, Part K: J. Multi-body Dynamics, 222(K4), 315-326, 2008.

15. B. Gavrea, M. Anitescu, and F.A. Potra. Convergence of a Class of Semi-Implicit Time-Stepping schemes for Nonsmooth Rigid Multibody Dynamics.SIAM J. Optim 19(2), pp. 969-1001 (2008).

16. D. Negrut, M. Anitescu, A. El-Azab, and P. Zapol, "Quasicontinuum-like reduction of DFT calculations of nanostructures", *Journal of Nanoscience and Nanostructures*, Volume 8, Pages 3729–3740, 2008.

17. Mihai Anitescu, Paul Tseng, Stephen J. Wright. Elastic-Mode Algorithms for Mathematical Programs with Equilibrium Constraints: Global Convergence and Stationarity Properties. *Mathematical Programming*, 110(2) July, pp 337-371 2007.

18. Anitescu, M. Hovland, P. Palmiotti, G. Yang, W. S. "An Overview of Automatic Differentiation Tools and Techniques for Nuclear Reactor Applications", *Transactions- American Nuclear Society*, vol. 96, pages 538-539, 2007.

19. Anitescu, M. Hovland, P. Palmiotti, G. Yang, W. S. "Randomized Quasi Monte Carlo Sampling Techniques in Nuclear Reactor Uncertainty Assessment", *Transactions- American Nuclear Society*, Vol. 96, pages 526-527, 2007.

20. Mihai Anitescu , William J. Layton. Sensitivities in Large Eddy Simulation and Improved Estimates of Turbulent Flow Functionals. *SIAM Journal of Scientific Computing*, Volume 29 Issue 4, Pages 1650-1667, 2007.

21. M. Anitescu. Optimization-based simulation of nonsmooth dynamics. *Mathematical Programming, series A*, 105, pp 113–143, 2006.

22. F.A. Potra, M. Anitescu, B. Gavrea and J. Trinkle. "A linearly implicit trapezoidal method for stiff multibody dynamics with for multi-rigid-body dynamics with contact and friction", International Journal for Numerical Methods in Engineering, 66(7), pp 1079-1124, 2006.

23. G. Aliberti, G. Palmiotti, M. Salvatores, T.K. Kim, T.A. Taiwo, M. Anitescu, I. Kodeli, E. Sartori, J.C. Bosq, J. Tommasi Nuclear Data Sensitivity, Uncertainty and Target Accuracy Assessment for Future Nuclear Systems. *Annals of Nuclear Energy* 33(8), pp 700-733, 2006.

24. M. Anitescu. On Solving Mathematical Programs with Complementarity Constraints as Nonlinear Programs. *SIAM Journal on Optimization*, 15(4), pp. 1203–1236, 2005.

25. M. Anitescu. Global Convergence of an Elastic Mode Approach for A Class of Mathematical Programs with Complementarity Constraints. *SIAM Journal on Optimization*, 16(1), pp 120–145, 2005.

26. M. Anitescu and G.D. Hart. A constraint-stabilized time-stepping approach for rigid multibody dynamics with joints, contact and friction. *International Journal for Numerical Methods in Engineering*, 60(14), 2335-2371, 2004.

27. M. Anitescu and G.D. Hart. A Fixed-Point Iteration Approach for Multibody Dynamics with Contact and Small Friction. *Math Programming B.* 101(1), 3–32, 2004.

28. M. Anitescu, Faranak Pahlevani and William J. Layton. "Implicit for Local Effects and Explicit for Local Effects Is Unconditionally Stable". *Electronic Transactions in Numerical Analysis*, 18, 174–187, 2004.

29. M. Anitescu and G. D. Hart. Solving nonconvex problems of multibody dynamics with contact and small friction by sequential convex relaxation. *Mechanics Based Design of Machines and Structures* **31(3)**, 335-356, 2003.

30. M. Anitescu. On the rate of convergence of Sequential Quadratic Programming with nondifferentiable exact penalty function in the presence of constraint degeneracy. *Mathematical Programming*, 92 (2002), 359-386.

31. M. Anitescu and F. A. Potra. Time-Stepping Schemes for Stiff Multi-Rigid-Body Dynamics with Contact and Friction. *International Journal for Numerical Methods in Engineering*, 55 (2002), 753–784.

32. M. Anitescu. A Superlinearly Convergent Sequential Quadratically Constrained Quadratic Programming Algorithm for Degenerate Nonlinear Programming, *SIAM Journal of Optimization* 12 (2002), 949-978.

33. M.K. Mihcak, P. Moulin, M. Anitescu and K. Ramchandran, Rate-Distortion Optimal Subband Coding Without Perfect-Reconstruction Constraints, *IEEE Transactions in Signal Processing*, **49**(3): 542-557,2001.

34. P.Moulin, M. Anitescu and K. Ramchandran, Theory of Rate–Distortion–Optimal, Constrained Filter Banks — Application to IIR and FIR Biorthogonal Designs, *IEEE Transactions in Signal Processing*, **48**(4):1120–1132, 2000.

35. M. Anitescu, Degenerate Nonlinear Programming with a Quadratic Growth Condition, *SIAM Journal of Optimization*, **10**(4): 1116-1135, 2000.

36. M. Anitescu, F.A.Potra and D. Stewart, Time-Stepping for Three-Dimensional Rigid-Body Dynamics, *Computer Methods in Applied Mechanics and Engineering*, **177**, pp. 183–197, 1999.

37. M. Anitescu, G. Lesaja and F. A. Potra, Equivalence between different formulations of the linear complementarity problems, *Optimization Methods and Software* 7 (3-4), pp. 265-290, 1997.

38. M. Anitescu, G. Lesaja and F. A. Potra, An infeasible-interior-point predictor-corrector algorithm for the P_*-Geometric LCP, *Applied Mathematics and Optimization*, **36** (2), pp. 203-228, 1997.

39. P. Moulin, M. Anitescu, K. O. Kortanek and F. A. Potra, The Role of Linear Semi-Infinite Programming in Signal-Adapted QMF Bank Design, *IEEE Transactions of Signal Processing*, **45** (9), pp. 2160-2174, 1997.

40. M. Anitescu and F.A.Potra, Formulating dynamic multi-rigid-body contact problems with friction as solvable Linear Complementarity Problems *Nonlinear Dynamics*, **14**, pp. 231–247, 1997.

41. M. Anitescu, J. F. Cremer and F. A. Potra, Formulating 3D Contact Dynamics Problems, *Mechanics of Structures and Machines*, **24**(4), November 1996.

42. M. Anitescu, D. I. Coroian, M. Z. Nashed and F. A. Potra, Outer Inverses and Multi-Body System Simulation, *Numerical Functional Analysis and Optimization*, **17** (7-8), pp 661-678, 1996.

JOURNAL PAPERS SUBMITTED

1. Mihai Anitescu and John Birge." Convergence of stochastic average approximation for stochastic optimization problems with mixed expectation and per-scenario constraints". Preprint ANL/MCS 1562-1108. Submitted to Optimization Research Letters.

2. Victor Zavala and Mihai Anitescu. On-Line Nonlinear Programming as a Generalized Equation. Preprint ANL/MCS-P1641-0609. Submitted to SIAM Journal on Control and Optimization.

3. Emil Constantinescu, Victor Zavala, Matthew Rocklin, Sangmin Lee, and Mihai Anitescu. A Computational Framework for Uncertainty Quantification and Stochastic Optimization in Unit Commitment with Wind Power Generation. Submitted to IEEE Transactions on Power Systems.

4. Jie Chen, Mihai Anitescu and Yousef Saad. Computing F(a)b Via Least Squares Polynomial Approximations. Preprint ANL/MCS-P1693-1109. Submitted to SISC.

BOOK CHAPTERS

1. Victor M. Zavala, Mihai Anitescu and Theodore Krause. "On the Optimal On-Line Management of Photovoltaic-Hydrogen Hybrid Energy System". To appear in the Proceedings of the 10th International Symposium on Process Systems Engineering - PSE2009, Elsevier, Amsterdam.

2. A. Tasora, M. Anitescu. " A Fast NCP Solver for Large Rigid-Body Problems with Contacts, Friction, and Joints." *Springer book for ECCOMAS Thematic Conference in Multibody Dynamics*, Editor, Carlo Botasso, Springer , Berlin, 2008, pp 45-55.

3. M. Anitescu and F.A. Potra "On integrating stiff rigid multibody dynamics with contact and friction", in Contact Mechanics. *Proceedings of the 3rd Contact Mechanics International Symposium,* Kluwer Academic Publishers, Dordrecht, Netherlands, 2002, 83–90.

4. M. Anitescu, J. F. Cremer and F. A. Potra, Properties of Complementarity Formulations for Contact Problems with Friction, in *Complementarity and Variational Problems: State of the Art*, Michael C. Ferris and Jong-Shi Pang, Editors, SIAM Publications, Philadelphia, 1997, pp. 12-21.

REFEREED PROCEEDINGS PAPERS

1. Oleg Roderick, Mihai Anitescu, Paul Fischer, Won-Sik Yang. Polynomial regression with derivative information in nuclear reactoruncertainty quantification. To appear in Proceedings of the 2009 Fast Reactor Meeting (Kyoto).

2. Victor M. Zavala, Emil M. Constantinescu, and Mihai Anitescu. Economic Impacts of Advanced Weather Forecasting in Energy System Operations.To appear in Proceedings of the 2009 IEEE-PES conference.

3. Heyn, T., H. Mazhar, A. Tasora, M. Anitescu, and D. Negrut,"A parallel algorithm for solving complex multibody problems with stream processors". 2009 ASME IDETC conference, paepr DETC2009-86478.

4. Heyn, T., H. Mazhar, A. Tasora, M. Anitescu, and D. Negrut,"A parallel algorithm for solving complex multibody problems with stream processors", in ECCOMAS Multibody Dynamics Conference, J. Franczek, Editor. 2009: Warsaw, Poland.

5. Alessandro Tasora, Dan Negrut, Mihai Anitescu. Large-scale parallel multibody dynamics with frictional contact on the GPU. To appear in Proceedings of the ASME 2008 Dynamics and Control Conference, DSCC 2008. Preprint ANL/MCS -P1487-0308

6. Alessandro Tasora, Dan Negrut, Mihai Anitescu. "A GPU-based implementation of a cone convex complementarity approach for simulating rigid body dynamics with frictional contact". To appear in proceedings of the 2008 ASME Congress, paper IMECE-66766. Preprint ANL/MCS-P1545-0908

7. Kyle Schmitt, Justin Madsen, Mihai Anitescu, Dan Negrut. " A Gaussian process based approach for handling uncertainty in vehicle dynamics simulation". Preprint ANL/MCS-P1505-0608. Pdf version. To appear in the Proceedings of the 2008 ASME Congress, paper number IMECE-66664.

8. M. Anitescu, G. Palmiotti, Won-Sik Yang and Monika Neda. "Stochastic Finite-Element Approximation Of The Parametric Dependence Of Eigenvalue Problem Solution" . *Proceedings of the Mathematics, Computation and Supercomputing in Nuclear Applications*, Monterey, 2007.

9. Dan Negrut, Mihai Anitescu, Anter El-Azab, Steve Benson, Peter Zapol, Emil Constantinescu, and Toby Heyn, A Real-Space Parallel Optimization Model Reduction Approach for Electronic Structure Computation in Large Nanostructures Using Orbital-Free Density Functional Theory, In *Proceedings of the 2006 ASME International Mechanical Engineering Congress and Exposition*, paper no. IMECE 2006-15740, 2006.

10. M. Anitescu. "Mathematical Programs with Equilibrium Constraints ans Applications to Control". Argonne National Laboratory, Mathematics and Computer Science Division. *Proceedings of the 9th International Conference on Control Systems and Computer Science*, Bucharest, 2005.

11. D. Negrut, M. Anitescu, T. Munson, and P. Zapol, "Simulating nanoscale processes in solids using DFT and the quasicontinuum method", in *Proceedings of IMECE 2005, ASME International Mechanical Engineering Congress and Exposition, paper no. IMECE 2005-81755, 2005.*

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